SImplE: A Framework for the Successful Implantation of Enterprise IT Applications in Small and Medium Enterprises

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Abstract

Most information processing needs in small and medium enterprise (SME) related to standard enterprise activities are nowadays addressed through commercial-off-the-shelf software (COTS) products. This enables SMEs to reduce costs, save time, and diminish the risk of failure. Obtaining an enterprise IT application (EITA), shifted from a software development process to an EITA implantation process. Key aspects of this process, besides installing, configuring and making available the EITA, include dealing with the inevitable change of the enterprise's structure, redefining the work and altering communication patterns among employees. Although implanting EITA processes are nowadays common, the research literature is scarce in what concerns their systematic description and characterization. This article provides a perspective of the EITA implantation processes in SMEs that encompasses three components: actors involved, process model, and influence factors. It was developed through a research process that included an exploratory case study and a series of forty-eight interviews with different actors participating in EITA implantation processes in SMEs. The result – the SImplE Framework – aims to contribute to a better understanding of the process and to support SME seeking the benefits of IT.

Keywords: Implantation, Implementation, Framework, Enterprise application, ERP, SME.

1. Introduction

For many years, obtaining IT applications capable of supporting the activities (either operative or administrative) of an enterprise involved launching projects to produce tailor-made software products. Nowadays, enterprises can choose from a variety of IT applications, ready to be used. The critical issue when seeking the benefits from IT became the successful implantation[1] of those IT applications. The IT projects of the modern times aim at realizing the potential benefits of IT as soon as possible, through a process that involves: the selection, installation, configuration, and parametrization of COTS (Commercial Off-The-Shelf) products; loading existing information upon the IT application; and going live on its use.

Many IT consultancy companies possess their approaches for the successful implantation of IT applications. Examples include SAP's Activate [41] , Microsoft's Dynamics Sure Step [42], Oracle's Unified Method [23], or Primavera's MIP[24]. These approaches, resulting from many years of experience of their consultants, typically in large enterprises, are viewed as corporate assets and are seldom made public.

Large enterprises are normally the early beneficiaries of both IT solutions and approaches to IT implantation. Small and medium enterprises (SME), with a narrower set of competencies and fewer resources, must wait until the solutions and approaches are

[1] In this article we use the word *implantation* instead of *implementation*, because the word *implementation* is ambiguous, it can refer to the construction of the software or its deployment.

adapted to their characteristics.

Because of their reduced dimension and complexity, SMEs could be viewed as an easy context for the implantation of IT applications. However, the reality is different. The literature reports the many failures SMEs face when implanting IT applications [21] and the frequent problems encountered in the process: lack of proper planning [21, 26]; poor leadership [34]; difficulties on the selection of the most adequate IT application [14]; IT capability limitations [30]; high costs of the implantation process [22]; poor fit between the application and the enterprise [4, 10, 34]; poor data quality [11, 28, 34]; user resistance [34]; poor change management [4, 31]; informal communication [14, 28]; difficulties on affording the extensive necessary training. [40]; problems with installing the new application in a heterogeneous and often incompatible infrastructure [2, 17]; difficulties after implantation [21], among the main.

The implantation of IT application in SME is a favored object of interest for academics. Literature exhibits studies that encompass: frameworks for readiness the organization to implant IT applications [1, 13], frameworks for decision-making [3, 37], frameworks for the selection of IT applications [9], models for requirements engineering [16]. It should be noted that these frameworks and models only cover the first phase of the implantation of IT applications. In addition, several success factors models, based on the TOE framework, can be found in the literature [2, 22, 25, 27, 29, 33, 35]. The TOE framework provides a basis for explaining the main factors that affect the adoption and implementation of technological innovations, that considers three contexts: Technological, Organizational and Environment [5].

There are also models, often presented as holistic, that cover the whole implantation process [8, 17, 19, 28, 36, 38]. Although they present an overarching view of the process, these models are quite general; They provide little detail for the activities to include in the major phases of the process. Furthermore, those models also lack justification as their authors fail to provide enough empirical evidence for the proposed models.

The models embedded in the aforementioned approaches developed by consultancy companies and IT suppliers [23, 24, 41, 42] overlook the activities that precede the involvement of these players and the inescapable collaboration between them and the SME that will undergo the EITA implantation.

This article addresses this gap. It comprises the following research questions: What are the constituents of the EITA implantation process in SME? What are the main difficulties of an SME when implanting an EITA?

The research described in this article aims at contributing to a better understanding of the implantation of EITA in SMEs. It encompassed: an extensive literature review focusing on the implantation of IT applications and on the factors that affect its success; an exploratory case study; a field study that involved forty-eight interviews with key informants from different sectors, corresponding to representatives of the different players that participate in IT implantation projects in SME.

The main result is of this research is a comprehensive perspective of IT implantation in SME – SImplE: a framework for the Successful Implantation of Enterprise IT Applications in SME. The central element of the SImplE framework is a process model that seeks to encompass activities capable of dealing with the most influential factors and takes into consideration the stakes of all actors involved in the process.

This article is organized as follows: it starts with the characterization of SMEs in Europe, the description of Enterprise IT Applications and a justification for the use of the uncommon term "implantation". Subsequently, the article presents the research design and the main result of the research: The SImplE framework. The article ends with a discussion of the work and proposes activities to be carried out in the future.

2. Background

2.1. Small and medium enterprises

Micro, small and medium-sized enterprises (SMEs) play a significant role in the world economy. They are a major source of entrepreneurial skills, innovation, employment and

wealth creation. Figure 1 uses a "deformed" pyramid to illustrate the distribution of enterprises by size, according to the criteria defined by the European Union: number of employees and annual turnover [7]. The figure highlights that SMEs represent 99% of all European enterprises.

Due to their nature, SMEs lack resources and competencies for conducting projects that involve the implantation of IT applications. It is therefore important to develop methodological support for such projects to be used by SMEs.

2.2. Enterprise IT Applications

Currently, there is a wide variety of software packages that cover the information processing needs of many human and social endeavors. These software packages are named as Commercial Off-The-Shelf (COTS) products [20] or Ready to Use Software Products (RUSP) [15].

In this article, we refer to such software packages, namely those that aim at addressing well-acknowledged needs of enterprises, as EITA - Enterprise IT Applications. Different categories of EITAs can be considered, depending on what enterprise areas they cover and/or to the functionality they provide. Examples include point-of-sale (POS), BI & analytics, collaboration, customer relationship management (CRM), customer service, document management, content management, enterprise resource planning (ERP), finance, human resources, IT management, operations, supply -chain management (SCM), production, sales. There aren't standard or well-established names for these products as they can appear in many configurations, allowing a large variety of arrangements of functionality. Nevertheless, those names are widely used in the IT market. ERP products are an interesting case as they assure basic functions of an enterprise.

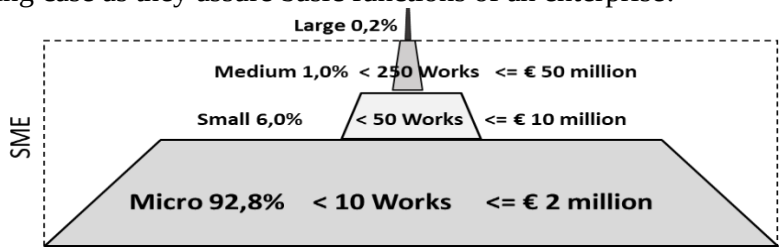

Figure 1. SMEs in Europe (data obtained from [7])

EITAs can be obtained through several different ways, including: in-house development; tailor-made development by a software house; purchase, renting, or licensing of a COTS software product. These applications can run on in-house servers or on external hosting services. Software-as-a-Service (SaaS) is becoming an increasingly common way of enterprises to get access to commercially available IT applications. This trend reinforces the perspective that RUPS and COTS products are the mainstream it what concerns getting access to EITAs. Several reasons justify such position. The first is the cost. It is no surprise that the cost of a COTS EITA is lower than the cost of a tailor-made EITA. Furthermore, COTS EITAs benefit from inputs from different enterprises and end up embracing good practices of the industry, thus providing advanced support to any enterprise. This applies even to specific industrial sectors. Exceptions should be considered when the enterprises have reasons to expect that their differentiation can lead to competitive advantages.

2.3. Implantation vs Implementation

The use of the term "implementation" is equivocal. It typically refers to the later stage of a process that involves thoughtful action. Implementation corresponds to the stage where plans are put into execution. Implementation stages can therefore be found in any project-oriented human endeavors, involving IT or not. Furthermore, in the case of IT-related activities, implementation is widely used to refer to the stage of the software development process where software plans are put into effect and result in a software (IT) artifact.

We recognize that the use of the term "implantation" is unconventional in the IS community. At least in the Anglo-Saxon influenced space, where "implementation" is the

most commonly used term to refer to the situation where an EITA is put in use in an enterprise. The reason to avoid "implementation" was explained above.

The key aspect of our phenomenon of interest is that it involves an enterprise that undergoes change that include putting an existing IT artifact into use. This involves lodging the IT artifact within the enterprise structure. Thus, the term "implantation" might be viewed as suggestive. It alludes to the introduction of an external entity – the EITA – into an enterprise. Implantation has connotations with medical procedures that involve placing some artifact into a human body. We welcome such connotation. The adaptation of concepts from the medical practice to the IS practice can be beneficial to the latter as it can learn from the experience of a much longer established area.

It should be noted that in the Spanish and French languages, the term "implantation" (implantación - Spanish, implantation - French) is often used as a synonymous of implementation.

3. Research Design

This article describes the first phase of a research project that aims at developing methodological support for the implantation of EITAs in SME. As leading to the production of an artifact - a method – the project can be formulated as a design science research [12]. As depicted in figure 2, the project considers two phases. The first one is descriptive and leads to a better understanding of the process of EITA implantation in SMEs. The second phase aims at translating this understanding into methodological support for EITA implantation projects in SMEs. Figure 2 also shows the literature review, a research activity that goes along the project as it enables to link to existing knowledge (either descriptive or prescriptive), relevant to the research.

Although the authors have experience in IT implantation projects in SMEs, it was decided to carry out field studies in order to produce empirical evidence to sustain the resulting descriptive model. Two field studies were launched: an exploratory case study and a set of interviews with key informants. The unit of analysis for these studies was "the process of implantation of enterprise IT application in SMEs". It typically corresponds to a project that involves the implantation of a new EITA. The project starts with the realization of business needs by the enterprise. It encompasses the selection of an EITA, its acquisition, and implantation. The project ends when the enterprise considers that the new EITA is functioning normally and is fully embedded in the enterprise activities.

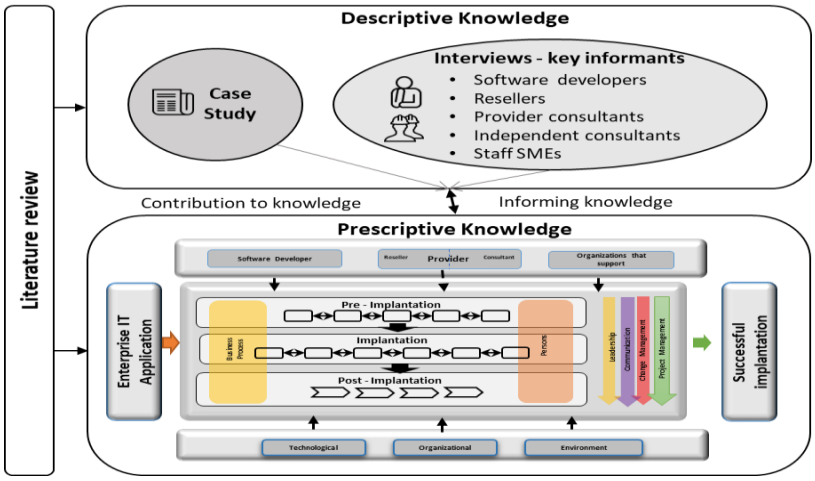

Figure 2. Main phases of the research project based in [12]

3.1. Literature review

The initial literature search, which served to approach the problem and detect existing gaps, was done in the AIS e-Library and Scopus, because these two sources of information cover most of the research conducted in this field. The following search expression was used:

(Success OR Problems OR Difficulties OR Challenges OR Issues) AND

(Implantation OR Implementation OR Adoption OR Selection) AND

(Software package OR Commercial off-the-shelf OR COTS OR Enterprise application OR Information Systems OR IT application OR ERP OR CRM OR CMS OR DMS OR ECM) AND

(Small and medium enterprise OR SME).

The four parts of the search expression reflect the several facets of the research questions. The initial search was done in April 2017. It led to 54 relevant articles that enabled to find other relevant articles through backwards and forwards references. The search was later updated, in April 2018, and a few new articles were identified and added. In total, approximately 60 articles have been analyzed. For the review of these articles, we used the TOE framework to identify the factors that influence the implantation of EITA in the SME. The resulting factors are shown in table 1.

3.2. Case study

The case study focused on a vehicle trading enterprise in Ecuador that recently went through an EITA implantation project. This enterprise is of average size with approximately 200 employees distributed in 5 branches. The implementation project consisted of a customized ERP for the commercialization of vehicles. The study involved four interviews with personnel that participated in the project (the quality manager - 30', the IT manager of the vehicle trading enterprise - 90', and the manager of the enterprise that supplied the EITA and provided support - 60') and analysis of documentation produced during the project. The IT manager was later interviewed again - 30', in order to clarify issues that emerged during the data analysis. The interviews lasted an average of 60 minutes.

The study followed the methodological recommendations issued by Yin [39]. The study can be described as a single-case exploratory study, under a rationale that it focuses on a common case. A holistic approach was chosen to deal with the phenomenon, that is, the entire process of implanting an EITA in the SME is covered. As a result of this exploratory study, a first model emerged of the EITA implantation process in SMEs.

3.3. Interviews with key informants

With a first vision of how an EITA can be implanted in a SME, we started the other activity that enabled to deepen the understanding of the EITA implantation in SMEs. This activity was constituted by 48 interviews of key informants representing different actors relevant to the implantation of EITAs in SMEs: owners/CEO of software development enterprises (7); consultants working in partnership with the software developers, acting as resellers and consultants (7); independent consultants (5); personnel that provides IT support to SMEs (4); personnel of SMEs that implanted or are implanting EITAs (22); personnel of SMEs that have little or poor support from EITA (2); university faculty with academic interests in IT in SMEs (1). Interviewees were from different countries (Ecuador, Portugal, Spain, Mexico, and Argentina). They were opportunistically selected based on acquaintances of the researchers and on a search in LinkedIn of professionals that mentioned experience of participation in EITA implantation projects. The interviews had an average duration of 45 minutes, being the shortest of 20 minutes and the longest of 90 minutes.

3.4. Data analysis

For the purposes of data analysis, the interviews were transcribed. The analysis followed the recommendations of Kuckartz [18] and were support by the MaxQDA v.18 software tool. The analysis of the interviews involved the establishment of a coding that included categories and subcategories, which arose from the data with an inductive approach. The categories included: motivations, difficulties, EITA, processes, pre-implantation, implantation, post-implantation, leadership, communication, change management, project management, success factors, recommendations, organizations that support, see appendix A.

The SImplE Framework emerged from the analysis of this coding. It encompasses three components (cf. figure 3): external actors; model of the process; and influence factors. Each of these components are explained in the next section. Parts of the third component - influence factors – namely in what concerns motivations, difficulties, success factors, and recommendations, resulted from a combination of the emerging codified categories with the result of the literature review. Due to space limitations, the exhibition of supporting evidence based on transcriptions or a detailed presentation of codes won't be provided.

The SImplE Framework is the outcome of the first phase of our research project. It constitutes the basis for the next phase: to develop and evaluate proposals of methodological support for the implantation of EITAs in SME. Such outcome corresponds to prescriptive knowledge. It should contemplate detailed descriptions of how to carry out the activities considered in the SImplE Framework, together with contingency factors that take into consideration aspects such as the enterprise's size, industry sector, level of complexity. Special attention must be paid to the cross-cutting issues (leadership, communication, change management, and project management).

4. The SImplE framework

The framework for the Successful Implantation of EITA in the SME - SImplE - consists of three components: the first one identifies the external actors that may be involved in this project (Software developer, software provider and support organizations); the second one describes the process model in three phases (pre-implantation, implantation, post-implantation), cross-cutting areas of concern (leadership, communication, change management and project management) and area of focus (persons and process); finally, the third component indicates which are the influence factors (Technological, Organizational and Environment) in the implantation of the EITA. See figure 3.

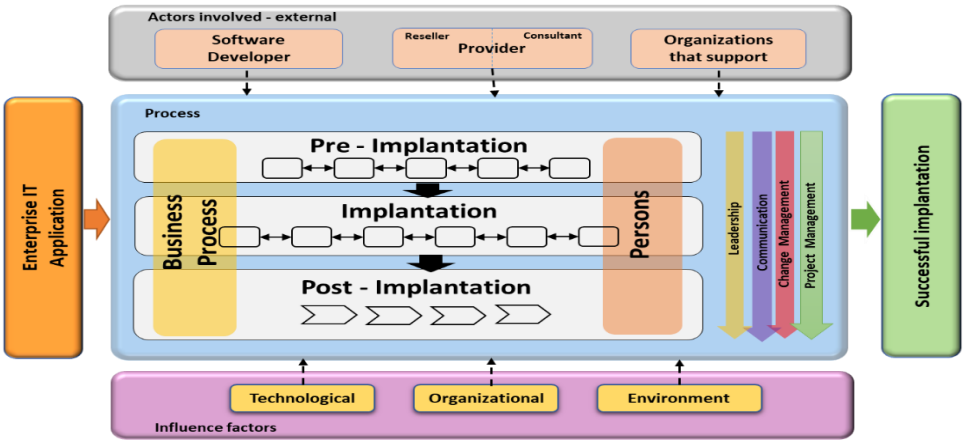

Figure 3: SImplE - Framework for the Successful Implantation of EITA in the SME

4.1. Actors involved - external

Software developer. The company that develops the software, depending on its business model, will use distribution channels to place its product. Small producers will sell and implant directly to SMEs, and as they scale up, they can have distributors that carry out these tasks.

Software provider. Which can be of two types, resellers and consultants. Resellers who act as an intermediary between the software developer and the SME. Consultants can work on the side of the producers and distributors of the EITA to carry out the implantation and on the side of SMEs to advise this process. The purpose is that the implantation of EITA can be successful.

Support Organizations. The following associations have been identified that can help SMEs in the implantation of EITA: Business associations, universities and government entities.

4.2. Influence factors

The literature review has obtained the factors that influence the implantation of EITA in SMEs based on the TOE Framework (Technology, Organization, Environment). These factors were complemented with those obtained in interviews with key informants. See table 1.

Table 1: Influence factors in the implantation of EITA in SMEs based on TOE

Context	Subcontexts	Factor	Sub-factor
Technology	EITA	Characteristics	Flexibility *
	Infrastructure	Hardware and networking	Acceptable *
Organizational	Strategic	Top management support	CEO / CIO Involvement
		Plan the strategy	Planning integrated and coordinated
		Implement the strategy	Use of consultants
	Structural	BMP / BPR	Organisational structure should be modified before project initiation (BPR)
	Managerial	Project and Change management	Project management * Change management
		Information	Information management policies *
		Resources	Financial
	Decisional	Evaluation and selection	Evaluation and selection of EITA
	Social	Users	User involvement
		Communication	Good communication
		Education & Training	Education and training to users
	Capability	Capability in IS / IT	Capability in the domain of information
Environment	Market	Market pressure	Competitors pressure
	Provider	Maturity	Provider support quality & experience

* Factors obtained from interviews with key informants

4.3. Process of implanting EITA in SMEs

The process model presented in this section aims at covering all the activities necessary to assure the implantation of EITAs in SME. The model considers three phases (pre-implantation, implantation and post-implantation), four transversal areas of concern (leadership, communication, change management and project management), and two areas of focus (persons and business process). Each phase is then decomposed in stages, as shown in figure 4.

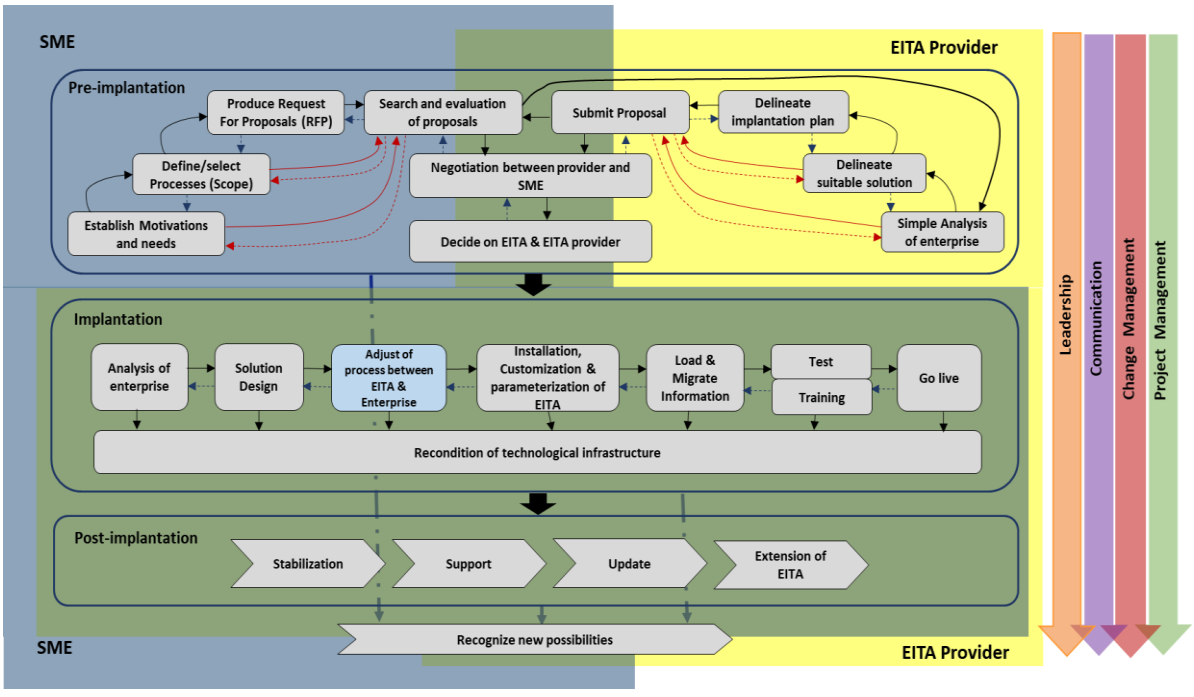

Figure 4: Process model of implantation of EITA in the SME

Phases succeed to each other sequentially. One phase can only start when the previous has

finished. On the other hand, once one phase is finished, there isn't an easy return, as that would involve to completely review the decisions made in the previous phase.

The objectives of the first phase - pre-implantation - include to define the needs of the enterprise, to select the EITA to be implanted and to hire its provider. All these objectives must be achieved before starting the second phase - implantation. The objective of this phase is to bring the EITA into operation. The last phase - post-implantation - involves stabilizing the EITA and its usage and to provide support for its users.

Within the first two phases, their composing stages can be viewed as carried out iteratively, advancing and receding as necessary. For example, in the pre-implantation phase, with the purpose of making an appropriate selection, the SME can start by defining their basic needs. Then it starts identifying its business processes, preparing an RFP (request for proposals) and searching the market. This might include inquiring providers, attending presentations, analyzing demos, visiting other enterprises that already use similar EITAs. This way, the SME will gain a deeper understanding of the potential benefits of using an EITA, that will likely be used to return to earlier stages and to review needs, business processes and to elaborate its RFP.

Similarly, during the implantation phase, during the execution of each stage, there might be a need to return to previous stages. For example, in the stage that addresses the load and migration of information, gaps in the EITA can be identified, which require to return to previous stages to solve those gaps. Such approach is compatible with the principles of agile methodologies that facilitate the early access to some functionalities of the EITA.

It is envisaged that different patterns of iteration among stages will exist depending on the size of the enterprise. Enterprise size typically determine the existing competences, skills and resources. For example, a micro enterprise, after establishing its needs, can skip intermediate stages and go straight to the search for a suitable EITA. An EITA provider can advance with a standard proposal for the micro enterprise that can be used to start a negotiation. The low cost of standard solutions suitable for well-established needs of micro enterprises doesn't justify spending time in detailed descriptions of business processes and detailed RFP.

Pre-implantation phase

This phase consists on ten stages, four carried out by SMEs, four carried out by the software provider, and two carried out jointly by SMEs and the provider. Below there is an overview of this phase and a quick description of each stage.

The stages carried out by the SMEs depend on the size of the enterprise: Start with the definition the needs and/or motivations, next step is the definition and selection of the processes that will be automated, later the guidelines will be elaborated to request proposals and finally, is done the search, evaluation, and selection of the EITA. The stages carried out by the provider start with a SImplE analysis of the SME, then a solution that fits is sketched, and the proposal is sent. The stages carried out jointly by the SME and the provider are the negotiation and decision, in which it is already decided to contract the implantation of the EITA with the provider that will guide this implantation.

Establish the motivations and needs. - There must be a business plan that justifies the investment, which establishes the Why? What is the need of the enterprise?

Define and select business processes. - If the SME has resources, the ideal is to re-engineer processes and based on these select the EITA that must be acquired.

Produce Requirements for Proposals (RFPs). - Should be prepared in conjunction with all the areas involved. One advantage of RFPs is that facilitates the evaluation and selection of EITA.

Search, evaluation and selection of EITA. – The SME starts communicating the requirements to providers through different means. Also, SME staff visit companies where EITA is working. This stage is sensitive since the success of the subsequent stages will depend on this.

SImplE analysis of the SME. - The provider contacts the SME and starts a rapid information gathering, it is to try to know the enterprise as soon as possible.

Delineate suitable solution. - The provider prepares a solution that meets the needs of the SME.

Delineate implantation plan. - The software provider plans to implant the EITA, where modules, costs, personnel and execution time are considered.

Submit proposal. - Finally, the supplier prepares and sends a proposal to the SME to try to get the negotiation and decision stages. As the size of the SME grows, the risk increases.

Negotiation between the supplier and the SME. - The cost of the EITA, implantation, financing, contract details, the scope of the proposal, types of licensing, and implantation time are negotiated. It is advisable to draw up a contract where the scope has been established.

Decide on EITA and its provider. - The final decision the EITA implantation is made by the enterprise's managers advised by the areas involved.

Implantation phase

The implantation phase has nine stages carried out jointly between the consultants of the provider and the enterprise staff. The consultants are responsible for guiding this process. Below there is an overview of this phase and a quick description of each stage.

This phase starts with an analysis of the enterprise according to the hiring, then a design of the implantation is made according to the structure of the EITA and the SME, the next stage is to adjust the processes between the SME and the EITA, subsequently, the installation, parameterization and personalization of the EITA is carried out, initial data is loaded and, if necessary, information is migrated from legacy systems, followed by two parallel stages: tests and training of personnel on the use of the EITA; finally the output to production is prepared. During this phase, the need to repower the technological infrastructure can be recognized.

Analysis of the enterprise. - Identify its structure, analyze the functions performed, see how the enterprise areas interact with each other, build an inventory of existing applications, identify their needs of information and future users.

Design of the solution - The solution that is going to be implanted is designed. This stage is carried out by implantation consultants, communicating and agreeing the design with the SME.

Process adjustment between the EITA and the enterprise. - The producers of the EITA offer software based on standard requirements. It is for this reason that it is preferable to adapt the processes of the SME to the processes of the EITA without any adjustment.

Installation, Customization and Parameterization of the EITA. - In this stage it proceeds to install, customized, and parameterized the EITA depending on the options that it has for that.

Loading and migration of information. - It is necessary to create a quality information policy so that the EITA is nurtured with reliable information. To migrate information from other applications, perform quality control beforehand. Go to production with initial balances. Migrating historical data must be considered as a project separated.

Testing and Training. - These two stages are carried out in parallel, and it starts from the selection of the principal users, with these users several steps of the implantation phase are worked on, during this time the system is tested, for which it is necessary training its operation.

Go to production. - The date in which the EITA will go out to production is defined, the requirements and the necessary activities that must be met to launch the system are indicated.

Recondition of the technological infrastructure. - It can be identified that the infrastructure is limited, which is why it is necessary to upgrade or change, depending on the enterprise's needs.

Post-implantation phase

As in the implantation phase, in this phase, the supplier and the SME intervene. There are four stages: the first one of stabilization of the EITA; the second stage corresponds to support; the third one is the update; finally, the fourth one can be an extension of the EITA.

Stabilization. - It is natural that there is a stabilization phase. The application is still unstable and that users do not use it properly. To solve this, it is recommended that stabilization should be carried out intensively after the launch of the EITA and later by cycles since the problems appear at the end of the cycle.

Support. - It is advisable to hire, together with the implantation of the EITA, at least one period the support. Having technical support guarantees that there will be personnel to provide help in technical and functional aspects.

Update. - This stage ensures the continuity of the EITA for several years; it may be required for several circumstances, especially when the government regulations change.

Extension of the EITA. - Once the enterprise already operates the EITA will begin to recognize and demand more functionalities of the application, and this is done by adding modules.

Recognize new possibilities. - It should be mentioned that during the three previous phases, the SME can recognize that there are several possibilities, not contemplated in the initial project.

Cross-cutting areas of concern

In this model, four cross-sectional stages are executed in an overlapping manner:

Leadership. – The project should be led by the general manager. Leadership is fundamental because at certain times difficult decisions must be made. Delegating this leadership without the power to decide complicates the process of implanting the EITA.

Communication. - Communication is the difference between success and failure of the project; it is for this reason that a project launch must be made where the involved personnel are explained what they intend to do, how they are going to do it and what are the expected results.

Change management. - This is one of the activities underestimated in the implantation; Implanting an EITA can involve structural changes in the enterprise, it also changes the way of working, requires more discipline to staff, etc. It should be considered that during the implantation of the EITA there will be more work since the SME must continue in operation.

Project management - This type of project requires two sub-projects: The first one during the pre-implantation phase, the objective is to select the EITA and the provider. The second one during the phases of implantation and post-implantation, the objective is put into operation the EITA in the SME, is managed by the software provided with the help of the SME staff.

Area of focus

Persons. - A sensitive issue in the implantation are persons, it must be reflected that people have differences and the treatment must also be different. It should also be borne in mind that in this type of project there will initially be resistance to change. It is necessary to plan way how people are going to be managed, considering that they have many activities.

Business Processes. - For the successful implantation of an EITA in a SME, it is necessary to recognize what are its needs and define the processes that will be automated. The

problem in this type of enterprises is that there is a lack of processes. The recommendation for SME is to define its processes according to their needs.

5. Discussion

Through a set of qualitative field studies, a framework for the successful implantation of EITA in SMEs was proposed - the SImplE. The framework considers three main aspects: actors involved in an implantation process; a process model that considers phases and their subdivision in stages, cross cutting concerns and areas of focus; factors that influence the success of an implantation process. The SImplE framework emphasizes the main aspects a SME should consider before, during and after the implantation of an EITA. Although privileging the perspective of the SME, the framework can also be useful for the other actors it identifies: the software developers, the EITA providers and other support organizations.

Although created as a descriptive model, the SImplE framework is a strong basis for a prescriptive model to be used in EITA implantation projects in SMEs. Translating the SImplE framework into the key elements of a method for the implantation of EITA in SMEs is the next step of our research. This will involve refining several of the aspects contemplated in the framework, namely: define what activities to consider in each stage, taking into consideration the specificities of each project (e.g., size, business area); how these activities should incorporate the cross-cutting concerns.

Besides the SImplE framework, our research led to other outcomes that are also relevant for the forthcoming stage of our research. Such outcomes are related to the motivations and main difficulties in EITA implantations in SMEs, and include:

- Most often, the motivations and problems in EITA implantation in SMEs are of organizational nature, instead of technological as it is frequently assumed and treated - the implantation process is many times conducted by IT people with minor involvement from management;
- Business processes are a key issue in EITA implantation in SMEs. However, as SMEs seldom formalize their business processes, there is a tendency for overlooking business processes. The SImplE framework contributes to make the business processes visible and to lead the SME through the adjustment between business process and the functionalities provided by the EITA;
- It is important that, at least one of the actors involved in the EITA implantation process is knowledgeable about the EITA functionalities, features and demands. The role played by those actors will help to overcome several difficulties related with the adjustment between business process and EITA functionalities, and with IT infrastructure requirements. In implantations with higher complexity, the involvement of specialist in the business areas affected (accounting, logistics, marketing, production, etc.) is advisable.

The SImplE framework could be reinforced. An interesting way of doing it, involves carrying out a few case studies, focusing on EITA implantation projects, where attention is payed to the documentation produced during the projects.

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Appendix A. System of Codes

Category	Category frequency
Organizations that support	39
SME	148
Motivation	108
Software - EITA	47
Partner	16
Software developer - editor	39
Communication	17
Change management	62
Leadership	24
Project management	114
Processes	65
Pre-implantation	276
Implantation	413
Post-implantation	81
Influencing factors	42
Problems or difficulties	409
Recommendations	207